

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

-----X
GABRIEL STEIF and EVA STEIF,

Plaintiffs,

-against-

08 CV 2892

GREYHOUND LINES, INC. and WILLIAM LEE
HENLEY, JR.,

Defendants.

-----X

MEMORANDUM OF LAW

FABIANI COHEN & HALL, LLP
Attorneys for Defendants
570 Lexington Avenue, 4th Floor
New York, New York 10022
(212) 644-4420

Of Counsel:
Kevin B. Pollak, Esq.

TABLE OF CONTENTS

Preliminary Statement	Page 2
Plaintiff's Claims	Page 3
Summary of Argument	Page 4
The Daubert Standard	Page 5
Courts Have Routinely Excluded QEEG Testimony	Page 11
Evoked Potential Tests and Cognitive Psychological Testing	Page 20
Conclusion	Page 21

PRELIMINARY STATEMENT

This Memorandum of Law is submitted on behalf of the defendants in connection with February 11, 2009 Daubert hearing and in support of the defendants' application to preclude the testimony of the plaintiff's psychiatrist, Dr. Daniel Kuhn, as well as to preclude the parallel testimony of the plaintiff's neurologist, Dr. Morton Finkel. The defendants object to Dr. Kuhn testifying in this action, including any testimony pertaining to the plaintiff's alleged brain injury (diffuse axonal injury ["DAI"]) and psychological testing of the plaintiff.

It is the defendants' position that Dr. Kuhn's methodology fails the Daubert test of admissibility [Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786 (1993) (hereinafter "Daubert")] and therefore Dr. Kuhn should be precluded from testifying at trial. Dr. Kuhn diagnosed Mr. Steif as having a traumatic brain injury, more particularly DAI, based upon quantitative electroencephalogram ("QEEG"). Additionally, Dr. Kuhn subjected Mr. Steif to various psychological testing. It is the defendants' position, supported by affidavits of Dr. Brian Greenwald and Dr. Dustin Gordon, that QEEG and the psychological testing that Mr. Steif was subjected to are error prone, unreliable and are not generally accepted in the relevant medical community that diagnosis and treats brain injury. Furthermore, there are no favorable peer review articles supporting Dr. Kuhn's methodology. In fact, there are peer review articles that state Dr. Kuhn's methodology, the QEEG testing, is not reliable for diagnosing traumatic brain injury such as DAI.

To the extent that Dr. Finkel relies upon any findings or diagnosis of Dr. Kuhn, Dr. Finkel should be similarly precluded from testifying at trial.

It is respectfully submitted that absent Dr. Kuhn's (Dr. Finkel's) DAI testimony the plaintiff will not be able to prove his brain injury claim. Therefore, said claim should be dismissed.

PLAINTIFF'S CLAIMS

Liability

In this personal injury action the 71 year old plaintiff, Gabriel Steif, claims that on February 27, 2008 he was struck by a Greyhound bus at the intersection of Dyer Avenue and West 40th Street in Manhattan. Mr. Steif testified that as he was crossing Dyer Avenue in the crosswalk (going from the northwest corner to the northeast corner) he was struck by a Greyhound bus that was being driven by defendant Henley. Mr. Steif testified that the left front of the bus (directly below the driver's seat) struck the middle of his chest.

Damages

The injuries claimed by Mr. Steif are traumatic brain injury (diffuse axonal injury ["DAI"]¹), a fracture of the right lateral tibial plateau ("the right knee) which was surgically repaired, a fracture of the left wrist which was treated with a cast and several fractured ribs. Mr. Steif testified that he returned to work at B & H Photo 6 – 8 weeks after the accident, generally working the same days and hours he did before the accident and earning the same salary.

Mr. Steif first saw a neurologist, Dr. Morton Finkel on June 19, 2008, almost four months post accident. In Dr. Finkel's first report dated July 27, 2008 there is no mention of traumatic brain injury/DAI. ["Diffuse Axonal Injury...[is] a severing of the axons in the brain that occurs when the brain is suddenly moved inside the skull". Claudio v. Portuondo, 2003 WL 22055171 (2nd Cir. 2003). (DAI is discussed at length in the affidavit of Dr. Brian Greewald, the defendants' brain injury expert.) Dr. Finkel referred Mr. Steif to a psychiatrist, Dr. Daniel Kuhn

who mentions traumatic brain injury for the first time in a September 4, 2008 report. It was not until October 9, 2008 that Dr. Kuhn for the first time mentions DAI in a report. Dr. Finkel then mimics the DAI diagnosis in an October 27, 2008 report.

SUMMARY OF ARGUMENT

It is submitted that Dr. Kuhn's testimony (and to the extent applicable, Dr. Finkel's testimony) should be precluded as his methodology in arriving at his conclusions pertaining to Mr. Steif's injuries has not been reviewed favorably in peer review articles, his methodology (QEEG and psychological testing) is error prone (e.g. a high rate of false-positive findings when using QEEG to diagnose brain injury) and his methodology has not gained general acceptance in the relevant medical community that diagnosis and treats brain injured patients. Dr. Kuhn's/Dr. Finkel's testimony is not admissible under FRE Rule 702 as such testimony is not grounded on sufficient facts and data, and such testimony is not the product reliable principles and methods.

QEEG has been defined as follows: "EEG is the recording of electrical patterns at the scalp's surface showing cortical electrical activity or brain waves. This recording is called an electroencephalograph, commonly referred to as an EEG. As a diagnostic tool, Quantitative EEG or QEEG provides a digital recording of the EEG which is apparently utilized to perform a comparative analysis of many EEG tracings of a patient suffering from brain disease or trauma against a normative data base of EEG tracings." Lamasa v. Bachman, 8 Misc. 3d. 1001 (A), 2005 WL 1364515, fn.6 (S.Ct. New York County 2005)

As demonstrated below Courts have consistently refused, on Daubert grounds, to allow testimony pertaining to the QEEG methodology as well as any conclusions, opinions or findings based upon this methodology. Falksen v. Secretary of the Department of Health, 2004 WL

785056 (Court of Federal Claims, 2004); Nadell v. Las Vegas Metropolitan Police Department, 268 F.3d. 924 (9th Cir. 2001); Craig v. Orkin Exterminating Company, Inc., 2000 WL 35593214 (S.D. Fal. 2000); Head v. Lathonia Corporation, Inc., 881 F.2d. 941 (10th Cir. 1989); In Re: Breast Implant Litigation, 11 F.Sup.2d. 1217 (D.Colo. 1998); Tran v. Hilburn, 948 P.2d. 52 (Colorado Court of Appeals, Div.1, 1997); Ross v. Schrantz, 1995 WL 254409 (Court of Appeals Minnesota 1995).

Furthermore, Dr. Kuhn's failure to perform a differential diagnosis renders his testimony and opinions inadmissible under Daubert.

THE DAUBERT STANDARD

In Amorgianos v. National Railroad Passenger Corporation, 303 F.3d. 256 (2nd Cir. 2002) the Second Circuit sets forth the standard for the admissibility of expert testimony under the Federal Rules of Evidence. The Court also set forth the role of the District Court under Daubert. The Court stated:

Rule 702 of the Federal Rules of Evidence, which governs the admissibility of expert and other scientific or technical expert testimony, provides as follows:

“If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.”

Fed.R.Evid. 702.

Interpreting Rule 702 in *Daubert*, the Supreme Court rejected the traditional *Frye* rule, under which courts required that a scientific theory be generally accepted by the scientific community in order to be admissible. *Daubert*, 509 U.S. at 585-89, 113 S.Ct. 2786; see *Frye v. United States*, 293 F. 1013, 1014 (D.C.Cir.1923);

see also *Zuchowicz v. United States*, 140 F.3d 381, 386 n. 5 (2d Cir.1998) (discussing Supreme Court's rejection of *Frye*). Concluding that the bright-line "general acceptance" test established in *Frye* was at odds with the "liberal thrust" of the Federal Rules of Evidence, *Daubert*, 509 U.S. at 588, 113 S.Ct. 2786 (internal quotation marks omitted), the Supreme Court has made clear that the district court has a "gatekeeping" function under Rule 702-it is charged with "the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." *Id.* at 597, 113 S.Ct. 2786; accord *Campbell*, 239 F.3d at 184; Federal Judicial Center, Reference Manual on Scientific Evidence 11 (2d ed.2000).

In fulfilling this gate keeping role, the trial court should look to the standards of Rule 401 in analyzing whether proffered expert testimony is relevant, i.e., whether it "ha[s] any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." *Campbell*, 239 F.3d at 184 (quoting Fed.R.Evid. 401) (alteration in original). Next, the district court must determine "whether the proffered testimony has a sufficiently 'reliable foundation' to permit it to be considered." *Id.* (quoting *Daubert*, 509 U.S. at 597, 113 S.Ct. 2786). In this inquiry, the district court should consider the indicia of reliability identified in Rule 702, namely, (1) that the testimony is grounded on sufficient facts or data; (2) that the testimony "is the product of reliable principles and methods"; and (3) that "the witness has applied the principles and methods reliably to the facts of the case." Fed.R.Evid. 702. In short, the district court must "make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom*266 the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire*, 526 U.S. at 152, 119 S.Ct. 1167.

Although Rule 702 sets forth specific criteria for the district court's consideration, the *Daubert* inquiry is fluid and will necessarily vary from case to case. The Supreme Court has identified a number of factors bearing on reliability that district courts may consider, such as (1) whether a theory or technique "can be (and has been) tested," *Daubert*, 509 U.S. at 593, 113 S.Ct. 2786; (2) "whether the theory or technique has been subjected to peer review and publication," *id.*; (3) a technique's "known or potential rate of error," and "the existence and maintenance of standards controlling the technique's operation," *id.* at 594, 113 S.Ct. 2786; and (4) whether a particular technique or theory has gained "general acceptance" in the relevant scientific community, *id.* See also *Fed. Deposit Ins. Corp. v. Suna Assocs., Inc.*, 80 F.3d 681, 687 (2d Cir.1996) (discussing *Daubert* factors); Jack B. Weinstein & Margaret A. Berger, Weinstein's Federal Evidence § 702.05[2][a], at 702-66 to 702-72.2 (Joseph M. McLaughlin ed., 2d ed.2002) (listing factors for the district court's consideration identified in *Daubert* and its progeny). These factors do not constitute, however, a "definitive checklist or

test.” *Daubert*, 509 U.S. at 593, 113 S.Ct. 2786. Rather, “[t]he inquiry envisioned by Rule 702 is ... a flexible one,” *id.* at 594, 113 S.Ct. 2786, and “the gatekeeping inquiry must be tied to the facts of a particular case,” *Kumho Tire*, 526 U.S. at 150, 119 S.Ct. 1167 (internal quotation marks omitted).

In undertaking this flexible inquiry, the district court must focus on the principles and methodology employed by the expert, without regard to the conclusions the expert has reached or the district court's belief as to the correctness of those conclusions. *See Daubert*, 509 U.S. at 595, 113 S.Ct. 2786. But, as the Supreme Court recognized in *Joiner*,

“conclusions and methodology are not entirely distinct from one another.... [N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.”

522 U.S. at 146, 118 S.Ct. 512. Thus, when an expert opinion is based on data, a methodology, or studies that are simply inadequate to support the conclusions reached, *Daubert* and Rule 702 mandate the exclusion of that unreliable opinion testimony. *See Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 153 (3d Cir.1999) (“[A] district court must examine the expert's conclusions in order to determine whether they could reliably follow from the facts known to the expert and the methodology used.”).

This is not to suggest that an expert must back his or her opinion with published studies that unequivocally support his or her conclusions. *See Bonner v. ISP Techs., Inc.*, 259 F.3d 924, 929 (8th Cir.2001) (observing that “[t]here is no requirement ‘that a medical expert must always cite published studies on general causation in order to reliably conclude that a particular object caused a particular illness’”) (quoting *Heller*, 167 F.3d at 155); *see also Fed. Deposit Ins. Corp.*, 80 F.3d at 687 (finding no abuse of discretion in the admission of expert testimony based on a hybrid of two widely used methods). In *McCulloch*, for example, we affirmed the district court's admission of medical expert testimony despite the fact that the expert “could not point to a single piece of medical*267 literature” that specifically supported the expert's opinion. 61 F.3d at 1043. Where an expert otherwise reliably utilizes scientific methods to reach a conclusion, lack of textual support may “go to the weight, not the admissibility” of the expert's testimony. *Id.* at 1044; *see also Zuchowicz*, 140 F.3d at 387. A contrary requirement “would effectively resurrect a *Frye*-like bright-line standard, not by requiring that a methodology be ‘generally accepted,’ but by excluding expert testimony not backed by published (and presumably peer-reviewed) studies.” *Heller*, 167 F.3d at 155. Such a bright-line requirement would be at odds with the liberal admissibility standards of the federal rules and the express teachings of *Daubert*. *See McCulloch*, 61 F.3d at 1042, 1044.

The flexible *Daubert* inquiry gives the district court the discretion needed to ensure that the courtroom door remains closed to junk science while admitting reliable expert testimony that will assist the trier of fact. To warrant admissibility, however, it is critical that an expert's analysis be reliable at every step. As Chief Judge Becker of the Third Circuit has explained, the *Daubert* "requirement that the expert testify to scientific knowledge-conclusions supported by good grounds for each step in the analysis-means that *any* step that renders the analysis unreliable under the *Daubert* factors renders the expert's testimony inadmissible." *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 745 (3d Cir.1994); *see also Heller*, 167 F.3d at 155 ("[T]he reliability analysis applies to all aspects of an expert's testimony: the methodology, the facts underlying the expert's opinion, the link between the facts and the conclusion, *et alia*.").

In deciding whether a step in an expert's analysis is unreliable, the district court should undertake a rigorous examination of the facts on which the expert relies, the method by which the expert draws an opinion from those facts, and how the expert applies the facts and methods to the case at hand. A minor flaw in an expert's reasoning or a slight modification of an otherwise reliable method will not render an expert's opinion *per se* inadmissible. "The judge should only exclude the evidence if the flaw is large enough that the expert lacks 'good grounds' for his or her conclusions." *In re Paoli*, 35 F.3d at 746; *see Daubert*, 509 U.S. at 590, 113 S.Ct. 2786. This limitation on when evidence should be excluded accords with the liberal admissibility standards of the federal rules and recognizes that our adversary system provides the necessary tools for challenging reliable, albeit debatable, expert testimony. As the Supreme Court has explained, "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. at 596, 113 S.Ct. 2786; *accord* Weinstein, § 702.05[3] at 702-76."

The rule governing the admissibility of expert testimony was also set forth in Wills v.

Amerada Hess Corp., 379 F.3d. 32 (2nd Cir. 2004)

Wills contends that the district court's exclusion of Dr. Bidanset's testimony*48 was an abuse of discretion. First, she maintains that the district court's concerns that Dr. Bidanset failed to establish that exposure to carcinogenic substances while aboard defendants' ships was the specific cause of decedent's cancer were misplaced. Under the Jones Act, she claims, a plaintiff need not demonstrate that defendant's action caused the injury, but rather a plaintiff need show only that defendant's actions were one of perhaps many causes of the injury. Wills's arguments miss the point of the district court's conclusions.

Rule 702 of the Federal Rules of Evidence, which governs the admissibility of scientific or technical expert testimony, provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

In *Daubert*, the Supreme Court made clear that the district court has a “gatekeeping” function under Rule 702, and is charged with “the task of ensuring that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” 509 U.S. at 597, 113 S.Ct. 2786. In fulfilling this role, the district court must consider both the reliability and relevance of the proffered testimony. In gauging reliability, the district court should consider the indicia of reliability identified in Rule 702, namely, (1) that the testimony is grounded on “sufficient facts or data;” (2) that the testimony “is the product of reliable principles and methods;” and (3) that “the witness has applied the principles and methods reliably to the facts of the case.” Fed.R.Evid. 702. In so doing, the district court must “make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Kumho Tire Co.*, 526 U.S. at 152, 119 S.Ct. 1167.

Although Rule 702 sets forth specific criteria for the district court’s consideration, these criteria are not exhaustive. The district court may consider a number of other factors in determining the reliability of the proffered testimony, including: (1) whether a theory or technique has been or can be tested; (2) “whether the theory or technique has been subjected to peer review and publication;” (3) “the technique’s known or potential rate of error” and “the existence and maintenance of standards controlling the technique’s operation;” and (4) whether a particular technique or theory has gained general acceptance in the relevant scientific community. See *Daubert*, 509 U.S. at 593-94, 113 S.Ct. 2786. In the instant case, the district court rejected Dr. Bidanset’s testimony on the grounds that it failed to comport with any of the relevant *Daubert* factors for reliability of expert testimony and granted summary judgment in favor of defendants because Wills failed to proffer admissible evidence of causation.

Wills first challenges the district court’s exclusion of Dr. Bidanset’s testimony on the grounds that it failed to quantify the dosage of the toxin to which decedent was allegedly exposed. Wills maintains that the court misapprehended Dr. Bidanset’s “oncogene theory” of causation and excluded the theory merely because it was not generally accepted in the scientific community. She further

argues that the district *49 court's requirement that Dr. Bidanset quantify dosage was unfair, as, she contends, defendants failed to monitor properly the concentration of toxins on ships upon which decedent worked, and she was not permitted sufficient discovery to determine the dosage amount. We find no abuse of discretion.

Dr. Bidanset's oncogene theory of causation, as the district court noted in its comprehensive and thorough discussion, *see Wills*, 2002 WL 140542, at *13-15, posits that decedent's cancer was caused by a single exposure-regardless of the quantity of the dosage-of toxic chemicals such as benzene and PAHs. Although the district court observed that the oncogene theory was not generally accepted in the scientific community, *id.* at *13, this factor was not determinative in the court's decision to exclude Dr. Bidanset's testimony. Instead, the district court considered the oncogene theory in light of *Daubert*'s four factors for reliability and concluded that the oncogene theory failed to satisfy *any* of the relevant factors. *Id.* at *13-14. The district court determined that there was no evidence that the theory had been tested or subjected to peer review. *Id.* at *13. Indeed, Dr. Bidanset admitted that the theory was the product of his own "background experience and reading," rather than scientific testing or peer review. Bidanset Dep. at 67. Further, the court found that Dr. Bidanset did not state a known or potential error rate for the theory. *Id.* Finally, the district court determined that the "dose-response relationship" was the more generally accepted theory of causation in the scientific community, and that the oncogene theory, as Bidanset conceded in his deposition testimony, was controversial. *Id.* at *14. The district court's assessment was entirely appropriate for discharging its duty to determine whether the "reasoning or methodology underlying the [proposed expert] testimony is scientifically valid." *Daubert*, 509 U.S. at 592-93, 113 S.Ct. 2786.*** In addition to the fact that it failed to satisfy any of the *Daubert* factors for reliability, Dr. Bidanset's proposed expert testimony suffered from another fatal flaw. Although Dr. Bidanset conceded that cigarette smoking and alcohol consumption were major risk factors for the development of squamous cell carcinoma, he failed to account for these variables in concluding that decedent's cancer was caused by exposure to toxic chemicals such as benzene and PAHs. *See Amorgianos*, 303 F.3d at 265 (noting that expert testimony may be excluded where "the flaw is large enough that the expert lacks good grounds for his or her conclusions") (internal quotation marks omitted). We agree with the district court that Dr. Bidanset's failure to account for decedent's smoking habit and alcohol consumption as possible causes of decedent's squamous cell carcinoma, strongly indicated that Dr. Bidanset's conclusions were not grounded in reliable scientific methods, as required by *Daubert*. (emphasis added).

Based upon the *Daubert* criteria as set forth by the Second Circuit it is respectfully submitted that Dr. Kuhn's testimony must be precluded. Any parallel testimony by Dr. Finkel must also be precluded. Dr. Greenwald's and Dr. Gordon's affidavits unequivocally establish

that Dr. Kuhn's methodology has not been favorably peer reviewed, is unreliable, has a high potential for error and has not been generally accepted in the medical community that diagnosis and cares for brain injured patients.

Furthermore, as Dr. Greenwald points out, Dr. Kuhn failed to perform a differential diagnosis in reaching DAI conclusion. Dr. Kuhn never mentions nor considers documented medical evidence that as of the time of the accident Mr. Steif had brain atrophy. Dr. Kuhn does not address brain atrophy as being the cause of Mr. Steif's alleged symptoms. This failure to perform differential diagnosis renders Dr. Kuhn's testimony inadmissible under Daubert. As the Second Circuit stated in Wills v. Amerada Hess Corp.: "We agree with the district court that Dr. Bidanset's [Kuhn's] failure to account for decedent's [Mr. Steif's] smoking habit and alcohol consumption [brain atrophy] as possible causes of decedent's squamous cell carcinoma [DAI], strongly indicated that Dr. Bidanset's [Dr. Kuhn's] conclusions were not grounded in reliable scientific methods, as required by *Daubert*". See also Lennon v. Norfolk and Western Railway Company, 123 F.Supp.2d. 1143, 1154 (N.D. Ind. 2000).

COURTS HAVE ROUTINELY EXCLUDED QEEG TESTIMONY

In all of the cases below the Court questioned the reliability of QEEG and/or excluded testimony concerning, and opinions based upon, QEEG. It is respectfully submitted that this Court should do the same in this case.

Falksen v. Secretary of the Department of Health, 2004 WL 785056 (Court of Federal Claims, 2004)

"The tests performed on Dr. Falksen by the board certified neurologists resulted in no objective abnormalities indicating an encephalitis with residual encephalopathy. A head MRI on Dr. Falksen performed on 27 January 1999 was

normal. Pet. Ex. 5 at 5, 18. An electroencephalogram (“EEG”) done on 27 January 1999 was normal. Pet. Ex. 5 at 5, 19. Psychometric studies performed at the Mayo Clinic were “basically normal.” Pet. Ex. 5 at 5. A spinal fluid examination on 11 February 1999 was “extremely normal.” Pet. Ex. 5 at 8, and her cerebral spinal fluid (“CSF”) was “totally normal.” Pet. Ex. 5 at 26. The additional psychometric testing performed on 22 February 1999 was again basically normal and the EEG done immediately afterwards was “perfectly normal.” Pet. Ex. 5 at 9.

On 27 December 2000, Dr. Falksen underwent a quantitative EEG (“QEEG”). Robert W. Thatcher, Ph.D., who is certified in EEG and QEEG Neurophysiology, summarized his analysis of the QEEG by stating it “shows sub-optimal neural function in widespread cortical regions, which is likely indicative of reduced capacity for information processing and reduced cortical resource allocation.” Pet. Ex. 11 at 7. Dr. Thatcher did not offer a causation for his findings.

In an assessment of QEEG sponsored by the American Academy of Neurology and the American Clinical Neurophysiology Society, the authors indicated that QEEG analysis techniques “remain controversial.” Res. Ex. A at 5. The authors concluded from their assessment that “[b]ecause of substantial risk of erroneous interpretations, it is unacceptable for any ... QEEG techniques to be used clinically by those that are not physicians highly skilled in clinical EEG interpretation.” *Id.* at 14. Additionally, the authors stated that “[o]n the basis of clinical and scientific evidence, opinions of most experts, and the technical and methodologic shortcomings, QEEG is not recommended for use in civil or criminal judicial proceedings.” *Id.* at 13.”

Nadell v. Las Vegas Metropolitan Police Department, 268 F.3d. 924 (9th Cir. 2001)

“In support of her excessive force claims, Nadell sought to call Dr. Michael Krieger as an expert witness. Dr. Krieger had performed a quantitative electroencephalogram (“QEEG”) on Nadell. A conventional EEG monitors and records the brain's electrical activity; the QEEG technique involves the mathematical processing, analysis, and display of digitally recorded EEG data. Nadell contended that her QEEG results supported her claim of physical injury from the force applied during her arrest. The district court granted the defendants' motion to exclude Dr. Krieger's testimony, finding that the QEEG test lacked the requisite reliability

Nadell argues that the district court abused its discretion in excluding scientific testimony concerning QEEG tests under Federal Rule of Evidence 702. A district court has broad latitude in deciding how to determine reliability, *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149, 153, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999), and its decision to exclude expert testimony is reversed only if “manifestly *928

erroneous,” *United States v. Hankey*, 203 F.3d 1160, 1167 (9th Cir.2000) (quoting *General Electric Co. v. Joiner*, 522 U.S. 136, 142, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997)) (internal quotation marks omitted). Here, the district court held a two-day evidentiary hearing and found the QEEG test to be “error prone” and inadequately subjected to peer review. The court also found that Dr. Krieger's testimony would not be helpful to the jury because Nadell had suffered serious head injuries as a child and Dr. Krieger's QEEG testing could not distinguish between those previous injuries and any injuries incurred during the arrest. The court's conclusions find considerable support in the record of the evidentiary hearing, including testimony by the leader of a joint task force of the American Academy of Neurology and the American Clinical Neurophysiology Society that the QEEG technique's subjectivity and tendency to produce “false positives” have kept it from achieving general acceptance for the clinical diagnosis of closed head injuries. The district court properly played its “gatekeeping role,” *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 597, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993), and did not abuse its discretion in excluding QEEG expert testimony.”

Craig v. Orkin Exterminating Company, Inc., 2000 WL 35593214 (S.D. Fal. 2000)

“Dr. Wand fails to support any of his conclusions. Much of the literature Dr. Wand testified that he relied on was supplied by Plaintiff just a few days before the *Daubert* hearing. Dr. Wand's testimony often contradicts statements he made during his deposition, many of his conclusions were shown to be inaccurate, and many of his qualifications were impeached. Dr. Wand testified that he conducted several objective tests, including nerve conductions, a Quantum EEG, and a SPECT scan. Dr. Wand testified that the Quantum EEG was shown to be prone to false positive results. Additionally, Dr. Wand testified that he did not have certification to read the results of the test. Dr. Wand testified that any two (2) people can interpret the Quantum EEG readings differently. Further, the Quantum EEG can not show the cause of the injury, only certain areas that have been damaged. The Quantum EEG has sparked substantial controversy among neurologists. Although it is suggested that a Doctor should conduct several Quantum EEGs to facilitate a proper response, Dr. Wand testified that he does not do that. Dr. Wand failed to produce a published protocol in regard to the Quantum EEG, the “in house” protocol Dr. Wand testified that he follows has never been reviewed. Additionally, a District Court in Colorado found that Quantum EEG testing was “not well recognized in the clinical setting.” *In re Breast Implant Litigation*, 11 F.Supp.2d 1217, 1238 (D.Colo.1998).^{FN4} The Tenth Circuit found that the Plaintiff in *Head* could not meet her burden, and therefore made a showing that a QEEG test had not achieved some scientific acceptability, or that the test does not have a reasonable measure of trustworthiness. *Head v. Lithonia Corp., Inc.*, 881 F.2d 941, 942-944 (10th Cir.1989).

Accordingly, it is ORDERED AND ADJUDGED as follows: 4. Defendant's Motion In Limine to Exclude Evidence of SPECT, QEEG/EP, DSEP and the Opinions of Dr. Paul Wand is hereby GRANTED."

Head v. Lathonia Corporation, Inc., 881 F.2d. 941 (10th Cir. 1989)

"Under Fed.R.Evid. 703 experts are given wide latitude to testify on facts otherwise not admissible in evidence and "to broaden the acceptable bases of expert opinion." *Merit Motors, Inc. v. Chrysler Corp.*, 569 F.2d 666, 672-73 (D.C.Cir.1977). Implicit in the rule, however, is the court's guidance to "make a preliminary determination pursuant to Rule 104(a) whether the particular underlying data is of a kind that is reasonably relied upon by experts in the particular field in reaching conclusions." 3 J. Weinstein & M. Burger, *Weinstein's Evidence* ¶ 703[03], at 703-16 (1982). This determination must be made on "a case-by-case basis and should focus on the reliability of the opinion and its foundation rather than merely on the fact that it was based, technically speaking, upon hearsay." *Soden*, 714 F.2d at 503 (citation omitted). Thus, the district court "may not abdicate its independent responsibilities to decide if the bases meet minimum standards of reliability as a condition of admissibility." *In re Agent Orange Prod. Liab. Litig.*, 611 F.Supp. 1223, 1245 (E.D.N.Y.1985), *aff'd*, 818 F.2d 187 (2d Cir.1987).

In this case, we believe the court abused its discretion in failing to address defendant's objection to Dr. Haugh's testimony based on topographical brain mapping. Rule 703 contemplates that the court will play some role in the assessment of expert testimony offered to a jury. While the trial process can leverage the probative value of this testimony, the process presupposes the court's guidance. Because the record does not sufficiently establish the trustworthiness of topographical brain mapping or its acceptance in the relevant scientific community, we VACATE the judgment and REMAND for a new trial."

In Re: Breast Implant Litigation, 11 F.Supp.2d. 1217 (D.Colo. 1998)

"Fourth, Dr. Hoffman used quantitative electroencephalography ("QEEG") in diagnosing the Plaintiffs. QEEG is not well recognized in the clinical setting. In his April 22, 1993 deposition, Dr. Hoffman conceded that the scientific community does not agree with him about the value of QEEG as a clinical diagnostic tool. "QEEG techniques are very predisposed to false-positive errors." Nuwer, Marc, M/D., Ph.D., "Assessment of Digital EEG, Quantitative EEG, and EEG Brain Mapping: Report of the American Academy of Neurology and American Clinical Neurophysiology Society", *Neurology* 1997, 49:277-292 (Exhibit G to Defendants' August 8, 1997 Reply Brief). "In some circumstances, QEEG has some positive values, but they are outweighed by the substantial problems encountered in trying to use the tests clinically." *Id.* at 49:280. QEEG "is not recommended for use in civil or criminal judicial proceedings." *Id.* at

49:285. QEEG is an unreliable, unacceptable methodology for diagnosing cognitive disorders and is not generally accepted by the relevant scientific community for that purpose. See APA Official Actions, "Quantitative Electroencephalography: A Report on the Present State of Computerized EEG Techniques," *Am.J. of Psych.*, 148:7, July 1991, at 962; see also *Head v. Lithonia Corp. Inc.*, 881 F.2d 941, 942-44 (10th Cir.1989) (plaintiff, as proponent of this scientific evidence, did not meet her burden of showing that the proffered QEEG test has achieved some scientific acceptability and that the test has a reasonable measure of trustworthiness); *Brownell v. Bulldog Trucking Co., Inc.*, Civ. 4-91-0005 (E.D.Tenn. July 7, 1993); *Tran v. Hilburn*, 948 P.2d 52, 57 (Colo.App.1997) ("QEEG is not generally accepted in the relevant scientific and clinical community for the purposes for which the evidence was offered."); *Ross v. Schrantz*, No. C8-94-1729, 1995 WL 254409 (Minn.Ct.App. June 14 1995) (record supported district court's decision to exclude QEEG evidence). Plaintiffs have presented no scientific validation of the use of QEEG.

Plaintiffs concede that QEEG is an experimental test, but argue that Dr. Hoffman did not use only QEEG in his assessment of them. Plaintiffs assert that Dr. Hoffman also used differential diagnosis to arrive at his opinions about causation. However, Dr. Hoffman does not explain what alternative causes he considered, or how he ruled out other possible causes. Dr. Hoffman offers no tested or testable theory to explain how, from his limited information, he was able to eliminate all other potential causes of Zelinger's and Roberts' conditions.

While Plaintiffs argue that Dr. Hoffman also used other methodology to reach his opinions, his conclusions regarding causation of Plaintiffs' "neurocognitive complaints" are entirely based on his interpretation of the QEEG. The QEEG results are integral to Dr. Hoffman's conclusions about Plaintiffs' neurocognitive disorders and their cause. Dr. Hoffman found Plaintiffs' performances on various neuropsychological tests were "average," "normal," at "a high level of functioning," "within normal limits," and "with no moderate to significant abnormalities." (Hoffman reports, Exhibit 7 to Plaintiffs' July 15, 1997 Opposition to Defendants' Science Brief). Relies solely on the QEEG results in opining that Plaintiffs have cognitive disorders.

Dr. Hoffman's causation opinions fall short of being validated by "sound science." As Dr. Hoffman admits that there are many possible causes of the Plaintiffs' conditions, his conclusions are subject to a high rate of error. The facts and data upon which Dr. Hoffman's testimony is based are not of a type reasonably relied upon by experts in the field of neurology and neuropsychology. Dr. Hoffman's methods fail to provide data which yields reliable conclusions on the existence of any cognitive deficits or causation.

Plaintiffs have not met their burden to demonstrate that Dr. Hoffman's methodology is reliable to determine general or specific causation of neurocognitive disorders by silicone gel breast implants. The methodology upon which he relied is not of the type normally relied upon by experts in his field in forming opinions about whether silicone breast implants can cause neurocognitive disorders in humans or in an individual patient. Dr. Hoffman's testimony about a causal connection between breast implants and neurocognitive disorders is inadmissible under Rules 702 and 703. *Claar*, 29 F.3d at 501-03; *Hall*, 947 F.Supp. at 1414."

Tran v. Hilburn, 948 P.2d. 52 (Colorado Court of Appeals, Div.1, 1997)

"QEEG was offered here as an objective test for mild closed-head injury. Symptoms of mild closed-head injury include: (1) physical symptoms such as nausea, headaches, dizziness, fatigue, lethargy, and sensory loss; (2) cognitive deficits such as loss of attention, concentration, perception, and memory not otherwise explainable; and (3) behavioral changes such as increased irritability, quickness to anger, disinhibition, and mood swings not otherwise explainable.

Mild closed-head injury is generally diagnosed subjectively, that is, based on the statements of the patient. However, here, the plaintiff is difficult to diagnose subjectively because his first language is Vietnamese; his facility in the English language is severely limited; and, because he came to the United States as a refugee, there is an absence of historical medical or education records, or standardized test results.

There is a conflict in the expert testimony as to whether plaintiff suffers from a closed-head injury. In addition, it is evident that plaintiff's expert, whose diagnosis was subjective, relied in part on QEEG to bolster his diagnosis even though he was not permitted to so testify.

QEEG, in its simplest terms, is a computer enhanced electroencephalogram that compares the brain activity of the patient with a database of the brain activity of normally functioning brains. The trial court admitted this evidence over Hilburn's objection based on the testimony of plaintiff's expert, a neuropsychiatrist, and a report issued in 1994 by a task force of the American Medical EEG Association (AMEEGA).

At the outset, we note that, contrary to plaintiff's assertion, Hilburn did make a specific objection at trial to the admission of the QEEG test following voir dire of plaintiff's expert witness. Therefore, she properly preserved this issue on appeal. *See Hancock v. State*, 758 P.2d 1372 (Colo.1988) (pursuant to CRE 103(a)(1), a

timely specific objection at trial is required to preserve evidentiary questions for appellate review).

Plaintiff's expert witness explained that the theory behind QEEG is that it can identify microscopic problems resulting from a closed-head injury that cannot be detected on traditional CT scans or MRIs.

As to the technique employed, the test is administered by placing a cap on the patient's head with electrodes to detect brain activity. The patient goes through a series of directed activities, *e.g.*, sitting with eyes open, sitting with eyes closed, performing math problems, and reading. The instrument*56 measures the electrical brain activity during the directed activities. Thereafter, the electroencephalographic recordings are entered into a computer that digitizes them and compares them to a database of normal same-aged persons and by that means identifies anomalies in the patterns of brain activity in braindamaged patients.

QEEG can also, according to its proponents, perform a "discriminate analysis," in which a report is generated indicating the probability that the patient's brain activity pattern matches a pattern identified with a particular type of injury.

In support of QEEG's general acceptance, plaintiff offered the expert testimony of a neuropsychiatrist who had studied the diagnostic capabilities of QEEG, published an article on the uses of QEEG, and had lectured nationally on the subject. The witness had also performed a QEEG evaluation of plaintiff and expressed his opinion, based in part on QEEG, that plaintiff suffered from a mild closed-head injury.

The expert testified that QEEG became a generally accepted technique in 1994, following a study performed by a task force of the AMEEGA. The task force published findings concluding that:

Although continuing to develop, QEEG technology has matured sufficiently and is now well established. Concerns regarding its clinical use have primarily resulted from its misapplication and misinterpretation stemming, largely from inadequate personnel training and expertise.

F. Duffy, J. Hughes, F. Miranda, P. Bernad, & P. Cook, *Status of Quantitative EEG (QEEG) in Clinical Practice*, 25 *Clinical Encephalography* VI (1994). The AMEEGA task force estimated there are 300 QEEG units used in clinical practice in North America.

Hilburn cites a number of scientific journals that cast doubt on QEEG and offered the expert testimony of two psychiatrists who expressed the opinion that QEEG was not a reputable and reliable procedure; had not been proven or accepted by the medical community; and had not been recognized by the American Board of

Psychiatry & Neurology, the American Psychiatric Association, or the American Neurological Association.

QEEG is apparently used quite extensively as a research instrument but is not widely used by clinicians as a diagnostic tool. Undisputed evidence presented by Hilburn reveals that QEEG is not considered reliable in the professional organizations which count in their membership the majority of the clinicians who would use the instrument for diagnostic purposes.

In our view, for the purposes of this case, the relevant scientific community is the community of clinicians who diagnose and, based on that diagnosis, treat brain injured patients. General acceptance in that community implies that the instrument is relied upon by a significant number of clinicians as providing valid and valued assistance in diagnosing and subsequently treating brain injured patients. There is no indication in this record that QEEG has reached a general level of acceptance in that community.

Two appellate courts have held that a trial court did not abuse its discretion in excluding QEEG, or similar technology, on the basis of the scientific literature. *Ross v. Schrantz*, 1995 WL 254409 (Minn.App.) (not selected for official publication) (QEEG); *State v. Zimmerman*, 166 Ariz. 325, 802 P.2d 1024 (Ariz.App.1990) (Brain Electrical Activity Mapping (BEAM)).

*57 We conclude that QEEG is not generally accepted in the relevant scientific and clinical community for the purposes for which the evidence was offered. Therefore, the trial court erred in admitting the evidence."

Plaintiff further argues that, even if the QEEG evidence should not have been admitted, any error is harmless. We disagree.

Ross v. Schrantz, 1995 WL 254409 (Court of Appeals Minnesota 1995)

"Cherie Ross and John Schrantz had an automobile accident on October 9, 1986. Schrantz stipulated to liability for the accident, and a jury trial was held to determine Ross' physical and economic damages.

Ross intended to show that she suffered a closed head injury, primarily by evidence obtained through quantitative electroencephalography (QEEG). Schrantz made a motion in limine to prohibit the introduction of QEEG evidence because it lacked scientific credibility. Ross argued that QEEG was the best method of detecting closed head injuries, superior to the accepted EEG diagnostics, x-rays, CT scans, and MRIs, which all had failed to detect head injury.

The district court granted the motion to exclude this evidence, concluding that under the *Frye* standard, Ross had failed to show through submitted scientific literature that QEEG is reliable or generally accepted in clinical applications. The district court specifically found that QEEG is not well recognized in clinical settings and is not a stand-alone diagnostic tool.

Ross first argues that the district court erred by using the standard for admitting scientific evidence set out in *Frye v. United States*, 293 F. 1013 (D.C.Cir.1923), instead of applying that in *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 113 S.Ct. 2786 (1993). We reject this argument because the *Frye* test continues to apply in interpreting the Minnesota Rules of Evidence. See *State v. Klawitter*, 518 N.W.2d 577, 578 n. 1 (Minn.1994) (recognizing that U.S. Supreme Court overruled *Frye* in *Daubert* but “express[ing] no opinion on the continued vitality of the *Frye* rule in Minnesota”); *State v. Bauer*, 512 N.W.2d 112, 115 n. 1 (Minn.App.1994), *aff’d*, 516 N.W.2d 174 (Minn.1994); *State v. Alt*, 504 N.W.2d 38, 46 (Minn.App.1993), *pet. for rev. granted and remanded*, 505 N.W.2d 72 (Minn.1993); *accord State v. Goldenstein*, 505 N.W.2d 332, 342 n. 5 (Minn.App.1993), *pet. for rev. denied* (Minn. Oct. 19, 1993).

*2 The *Frye* standard requires that “experts in the field generally agree that the evidence is reliable and trustworthy.” *State v. Schwartz*, 447 N.W.2d 422, 424 (Minn.1989). The affidavits and accompanying scientific literature submitted by the parties provide ample support for the district court's conclusion that QEEG has not reached the point where the scientific community generally agrees that it provides a reliable, stand-alone diagnostic tool for clinical application. The literature shows that to date, QEEG has primarily been used in research settings and in conjunction with the more accepted diagnostic tools.

Even assessing the QEEG evidence under the *Daubert* standard, the record supports the district court's decision to exclude it. Under the *Daubert* test, the court must determine whether the expert will testify to “(1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.” *Daubert*, 509 U.S. at ----, 113 S.Ct. at 2796. To qualify as scientific evidence under this standard, the proposed evidence must be reliable, defined as being based upon scientific validity (and not scientific reliability). *Id.* at ---, 113 S.Ct. at 2795 & n. 9.

To meet the second *Daubert* prong of “helpful to the trier of fact,” the proposed evidence must be relevant, which is defined as requiring “a valid scientific connection to the pertinent inquiry.” *Id.* at ---, 113 S.Ct. at 2796. *Daubert* provides four factors for applying this theoretical test: (1) whether the theory or technique can be and has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) the known or potential rate of

error, and the existence and maintenance of standards controlling the technique's operation; and (4) whether the theory or technique has gained general acceptance in the relevant scientific community. *Id.* at ---, 113 S.Ct. at 2796-97.

The record points to three main weaknesses in using QEEG under a *Daubert* analysis: it has been used (1) primarily as a research tool and not for clinical diagnosis, (2) in conjunction with other tests and not as a sole indicator, and (3) only successfully in areas other than closed head injuries. The first two factors point to QEEG's unreliability as a predictor of closed head injuries and the third questions its relevance in proving Ross' injury."

EVOKED POTENTIAL TESTS and COGNITIVE PSYCHOLOGICAL TESTING

Evoked Potential Testing

In his affidavit at paragraph 23-24, Dr. Greenwald establishes the visual evoked potential test which Dr. Kuhn utilized to diagnose DAI has no general acceptance in the medical community as a tool for the diagnosis of brain injury. Dr. Greenwald cites an article which discusses Diffusion Tensor Imaging as a possible technique for diagnosing DAI. Evoked potential tests are not mentioned in the article.

Any testimony pertaining to evoked potential test should be precluded. As noted above, in Craig v. Orkin Exterminating Company, Inc., 2000 WL 35593214 (S.D. Fla. 2000), the Court excluded QEEG and "EP" testimony. The Court stated: "Defendant's Motion In Limine to Exclude Evidence of SPECT, QEEG/EP, DSEP and the Opinions of Dr. Paul Wand is hereby GRANTED."

Psychological/Cognitive Testing

In his affidavit, at paragraphs 11-19, Dr. Gordon unequivocally establishes that any attempt by Dr. Kuhn to establish DAI under the guise of "psychological testing" (cognitive testing) fails as Dr. Kuhn fails to use testing protocol ("standardized neurologic measures"). Dr. Gordon enumerates numerous standard psychological measures which Dr. Kuhn neglected to

use. Dr. Gordon establishes Dr Kuhn's methodology is not generally accepted in the neuropsychological community. Dr. Kuhn's results and diagnosis are therefore unreliable and error prone. Any testimony by Dr. Kuhn with respect to his psychological testing of Mr. Steif should therefore be precluded.

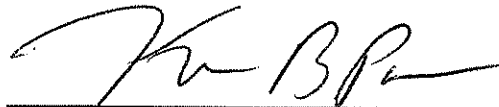
CONCLUSION

For the reasons set forth above it is respectfully submitted that Dr. Kuhn should be precluded from testifying at trial. Similarly, Dr. Finkel should be precluded from offering any testimony (opinions) at trial that utilizes or rely upon Dr. Kuhn's findings or opinions. Should preclusion be granted it is submitted that the plaintiff's brain injury/DAI claim must be dismissed since the plaintiff cannot establish causation.

**Dated: New York, New York
February 3, 2009**

Yours, etc.,

FABIANI COHEN & HALL, LLP



**Kevin B. Pollak (KBP 6098)
Attorneys for Defendant
GREYHOUND LINES, INC.
and WILLIAM LEE HENLEY, JR.,
570 Lexington Avenue, 4th Floor
New York, New York 10022
(212) 644-4420**

**TO: JAROSLAWICZ & JAROS, LLC
Attorneys for Plaintiffs
GABRIEL STEIF and EVA STEIF
225 Broadway - 24th Floor
New York, New York 10007
(212) 227-2780**

Gabriel Steif and Eva Steif v. Greyhound Lines, Inc. and William Lee Henley, Jr.
Index Number: 08 CV 2892
Our File Number: 818-34751

CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing **MEMORANDUM OF LAW**, was served via ECF and personal delivery this 3rd day of February, 2009, upon:

JAROSLAWICZ & JAROS, LLC
Attorneys for Plaintiffs
GABRIEL STEIF and EVA STEIF
225 Broadway - 24th Floor
New York, New York 10007



Kevin B. Pollak (6098)

Sworn to before me this
3rd day of February, 2009.



Notary Public

SANDER N. ROTCHILD
Notary Public, State of New York
No. 0056510-0001
Qualified in Nassau County
Commission Expires March 20, 20 10